



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/712,768

11/13/2003

Jan Prochazka

10225/57 (A28)

7402

7590 05/03/2007
Brinks Hofer Gilson & Lione
NBC Tower, Suite 3600
P.O. Box 10395
Chicago, IL 60610

EXAMINER

FIORITO, JAMES

ART UNIT

PAPER NUMBER

1754

MAIL DATE

DELIVERY MODE

05/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/712,768

Applicant(s)

PROCHAZKA ET AL.

Examiner

James A. Fiorito

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 9-11, 13-15, 20-36 and 40-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-11, 13-15, 20-36, and 40-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 uses improper Markush group language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9-11, 13-15, 20-36, 40-41 and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duyvesteyn (WO 01/00530).

Duyvesteyn teaches the processing of aqueous titanium solutions to a TiO₂ rutile pigment. An aqueous titanium chloride or titanium oxychloride solution is prepared, the solution is evaporated at preferably 200 to 250°C, eg by spray drying, and the resulting TiO₂ is calcined (Page 10). The spray hydrolysis produces hollow thin-film spheres or parts of spheres having a diameter in the range of about 1 to about 100 microns. The

Art Unit: 1754

calcination temperature lies between 500 and 1100°C (Page 8), calcination duration is 2h in the examples. Claim 26 claims a calcination time of less than about two hours; since the term "about" introduces certain vagueness, the calcination duration of 2h is regarded as falling with the range claimed in claim 26 (Page 9). Following calcination, the TiO₂ is milled and washed. Additionally, chemical control and seeding agents for control of physical and mineralogical characteristics may be introduced in minor quantities into the titanium solution, such as chloride salts of lithium, sodium, potassium or tin (Page 6). Since all other process features are identical, it is regarded as implicitly disclosed, that an open network of rutile crystals will result, that a brookite phase will be formed as an intermediate during calcination, and that the crystallites will have a particle size as claimed in claims 37 to 39 (Page 7). Duyvesteyn teaches recycling of the aqueous salt solution (Figure 2).

Duyvesteyn does not expressly state the catalyzing salt is a mixture of two or more of NaCl, KCl, and LiCl. However, it appears that it would have been obvious to form the catalyzing salt as a mixture of two or more of NaCl, KCl, and LiCl, since Duyvesteyn teaches that minor quantities of chemical control agents may be introduced into the titanium chloride solution to control the physical and mineralogical characteristics of the solid titanium dioxide product (Page 6).

Duyvesteyn does not expressly state the ratio of the catalyzing salts in the mixture; the calcining is conducted at a temperature less than 400 degrees C, or the calcinations time is less than about one minute. However, it is well settled that determination of optimum values of cause effective variables such as these process

Art Unit: 1754

parameters is within the skill of one practicing in the art. In re Boesch, 205 USPQ 215 (CCPA 1980).

Claims 1-8, 13-15, 20-23, 25-27, 29-36, and 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duyvesteyn (US 6440383).

Duyvesteyn teaches the processing of aqueous titanium solutions to a TiO₂ rutile pigment. An aqueous titanium chloride or titanium oxychloride solution is prepared (Column 2 Lines 1-5), the solution is evaporated at preferably 200 to 250°C, eg by spray drying, and the resulting TiO₂ is calcined (Column 3 Lines 50-57). The spray hydrolysis produces hollow thin-film spheres or parts of spheres having a diameter in the range of about 1 to about 100 microns (Column 3 Lines 60-67). The calcination temperature lies between 450 and 1100°C (Column 4 Lines 17-33), calcination duration is between 20 min and 80 hrs. Following calcination, the TiO₂ is milled and washed (Column 4 Lines 49-60). Additionally, chemical control and seeding agents for control of physical and mineralogical characteristics may be introduced in minor quantities into the titanium solution, such as chloride salts of lithium, sodium, potassium or tin (Column 3 Lines 15-32). Since all other process features are identical, it is regarded as implicitly disclosed, that an open network of rutile crystals will result, that a brookite phase will be formed as an intermediate during calcination, and that the crystallites will have a particle size as claimed in claims 37 to 39. Duyvesteyn teaches recycling of the aqueous salt solution (Figure 2).

Duyvesteyn does not expressly state the catalyzing salt is a mixture of two or more of NaCl, KCl, and LiCl. However, it appears that it would have been obvious to form the catalyzing salt as a mixture of two or more of NaCl, KCl, and LiCl, since Duyvesteyn teaches that minor quantities of chemical control agents may be introduced into the titanium chloride solution to control the physical and mineralogical characteristics of the solid titanium dioxide product (Column 3, Lines 15-30).

Response to Arguments

Applicant's arguments with respect to claims 1-5, 9-11, 13-15, 20-36, and 40-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1754

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

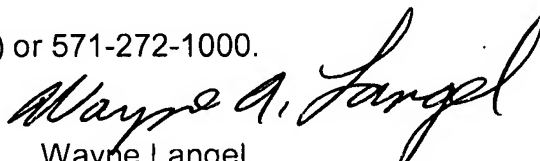
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on 9am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James Fiorito
Patent Examiner
AU 1754

TF


Wayne Langel
Primary Patent Examiner
AU 1754